

CHALLENGES

Over the past 10 years the South African government has pushed forward with an ambitious plan to bring water services to millions lacking regular access to this precious commodity.

Many water supply systems in South Africa are compromised by huge losses of water, especially in previously disadvantage areas that were neglected during the apartheid period, where vast quantities of water are lost through dilapidated municipal water mains and leaky toilets, sinks and rusting steel pipes located on domestic properties. Other inefficiencies in water supply arise from inefficient operational service delivery practices and a lack of technical capacity, including the knowledge needed to obtain financing for required interventions.

Another challenge imperiling the long-term viability of water supply in South Africa is an entrenched culture that water should be free. During apartheid, township residents were levied a flat rate for all services rendered including water. As part of the mass action against the apartheid government, this payment was boycotted for more than twenty years, becoming an entrenched practice that has persisted into the new democratic dispensation. Although township residents now own their homes, most people are opportunistic and take advantage of weaknesses in the municipal system and still do not pay their accounts. Democratically elected municipal politicians are reluctant to address this politically sensitive issue head-on.

OBJECTIVES

The Alliance is helping cities in South Africa bring down the cost of providing ample quantities of clean water to all residents, including a free basic daily quantity of water as required by the Constitution. Since 2003, the Alliance to Save Energy Watergy Program has worked in partnership with municipalities in South Africa to take advantage of the tremendous efficiency opportunities in municipal water supply and wastewater treatment facilities.

APPROACH

Alliance assistance in South Africa is generally advisory and facilitative, such as developing strategies for water monitoring and metering, suggesting pressure management approaches that reduce water losses from leaky pipes and fixtures, conducting pump and motor analyses to adjust systems for maximum efficiency, and helping cities secure financing for more costly improvements. The Alliance establishes working relationships with municipalities to develop locally practical, holistic solutions for improving service delivery. On a national level, the Alliance is represented on the Steering Committee of a two-year project of the Republic of South Africa Water Research Commission, to quantify non-revenue water across South Africa using Burst and Background Estimates (or 'BABE') software.

The Program focuses on five cities: Mogale City, Johannesburg, Emfuleni, Buffalo City, and Polokwane. In all cases the Alliance develops solutions that have high potential for replication in other South African cities.

SPECIFIC PROJECTS & RESULTS

Mogale City

The Alliance provided technical assistance on management of water supply services, pressure management, and the use of leak detection equipment. The application of these measures within specific supply zones over the course of two years resulted in annual savings of 2.2 million kL of water every year (about 12% of the total), providing Mogale City with an additional 5.4 million Rand (\$890,000) per year for other much needed social services. The Alliance also assessed the application of prepayment metering in the city, demonstrating its ability to empower the consumer to reduce consumption. Based on the assessment, the city adopted a program to expand the use of pre-payment to provide the city with even greater water and energy savings and revenue.

Johannesburg

A water pre-payment pilot project in Soweto, conducted by Johannesburg Water with technical assistance from the Alliance, has reduced the volume of water delivered to households from an average of 70,000 L per month to 25,000, slashing non-revenue water from a staggering 300% to just 7%. Against significant public and political opposition to pre-paid water initially, acceptance by the community now stands at 98% in the implementation areas. This four year project, which will eventually encompass all of Soweto, has already created more than 400 jobs for the local community and will lead to combined estimated savings (mainly by reducing water leaks) of more than \$33 million per year in water supplied by Johannesburg Water. And energy savings are estimated to be 175,000 MWh/year.

Emfuleni

In the townships of Sebokeng and Evaton, the Alliance has spearheaded a unique project where the performance contracting approach of shared savings has been applied to the design, construction, installation and operation of a water pressure management system to monitor and manage water pressure. The Alliance convinced the municipality to implement the shared savings approach, and facilitated the process by writing the Request for Proposal, as well as helping draft and negotiate the contract. The RFP placed the onus on the bidders to submit not only technical solutions but explain how the project would be financed. The award went to an engineering firm specializing in pressure reduction management for a Build-Own-Operate-Transfer (BOOT) arrangement where the firm will obtain financing for the project, get paid with 20% of the water savings, and then turn over the pressure reduction plant to the water service provider after five years. Cost savings are estimated to be approximately \$3.8 million per year. And annual water savings are estimated to be 7 million kL.

Buffalo City

The Alliance is working with the city to initiate a pumping efficiency project that will eliminate some of

the known inefficiencies within the complex water and wastewater pumping system in the city. Based on a Water Loss Management Study completed for the City last year, the Alliance has drafted a proposal for the implementation of a city wide pressure management project. Because of undulating topography, water supply pressures vary greatly from area to area and the implementation of pressure management would result in significant savings in water wastage across the city.

Polokwane

The Alliance drafted a policy to guide the City of Polokwane in its efforts to better align the level of water and sanitation service provided with the ability of customers to pay. Creating a better match between supply and demand is an essential step in reducing the huge quantities of water wasted when consumers have no ownership of their consumption.

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Last Update: April 2005

This work is funded by the U.S.
Agency for International Development



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